

CLAIMS

What is claimed is:

1. A method for detecting a free-space gesture signature conducted with a gesturing instrument, said method comprising the steps of:
 - 5 providing a plurality of gesturing sensors in a two-dimensional arrangement, each sensor being adapted to detect a gesturing instrument within a proximity of a sensor, each sensor having an independent detection event signal;
 - determining a sensor sequence from a series of sensor detection events responsive to movement of a gesturing instrument within the proximity of said plurality of sensors; and
 - 10 correlating said sensor sequence to a predetermined sequence in order to authenticate a user of said gesturing instrument or to decode a command from said user.
- 15 2. The method as set forth in Claim 1 wherein said step of determining a sensor sequence comprises applying timing analysis to said series of sensor detection events.
3. The method as set forth in Claim 1 wherein said step of correlating said sequence to an authorized sequence further comprises authorizing a financial transaction.
- 20 4. The method as set forth in Claim 1 wherein said step of correlating said sequence to an authorized sequence further comprises authorizing a physical

security action.

5. The method as set forth in Claim 4 wherein said step of authorizing a physical security action comprises unlocking a door.
6. The method as set forth in Claim 4 wherein said step of authorizing a physical security action comprises allowing removal of a physical item from a controlled access area.
7. The method as set forth in Claim 1 wherein said step of providing a plurality of gesturing sensors comprises providing an array of Radio Frequency Identification (RFID) sensors adapted to detect movement of RF ID devices.
- 10 8. The method as set forth in Claim 1 wherein said step of providing a plurality of gesturing sensors comprises providing an array of acoustic sensors adapted to detect movement of acoustic-reflective gesturing instruments.
9. The method as set forth in Claim 1 wherein said step of providing a plurality of gesturing sensors comprises providing an array of infrared ("IR") sensors adapted to detect movement of gesturing instruments which are distinguishable by heat.
- 15 10. A computer readable medium encoded with software for free space gesture signature conducted with a gesturing instrument, said software causing a processor to perform the steps of:
 - 20 receiving detection event signals from a plurality of gesturing sensors in a two-dimensional arrangement, each sensor being adapted to detect a

gesturing instrument within a proximity of a sensor, each sensor having an
independent detection event signal output;
determining a sensor sequence from a series of sensor detection events
responsive to movement of a gesturing instrument within the proximity of said
5 plurality of sensors; and
correlating said sensor sequence to a predetermined sequence in order
to authenticate a user of said gesturing instrument or to decode a command
from said user.

11. The computer readable medium as set forth in Claim 10 wherein said software
10 for receiving detection event signals from a plurality of gesturing
sensors
comprises software for applying timing analysis to said series of sensor
detection events.
12. The computer readable medium as set forth in Claim 10 wherein said software
15 for correlating said sequence to an authorized sequence further
comprises
software for authorizing a financial transaction.
13. The computer readable medium as set forth in Claim 10 wherein said software
for correlating said sequence to an authorized sequence further
20 comprises
software for authorizing a physical security action.

14. The computer readable medium as set forth in Claim 13 wherein said software
for authorizing a physical security action comprises software for
actuating a door lock.

15. The computer readable medium as set forth in Claim 13 wherein said software
for authorizing a physical security action comprises software for
allowing
removal of a physical item from a controlled access area.

16. The computer readable medium as set forth in Claim 10 wherein said software
for receiving detection event signals from a plurality of gesturing
sensors
comprises software for receiving signals from a plurality of Radio Frequency
Identification (RFID) sensors adapted to detect movement of RFID devices.

17. The computer readable medium as set forth in Claim 10 wherein said software
for receiving detection event signals from a plurality of gesturing sensors
comprises software for receiving signals from a plurality of acoustic sensors
adapted to detect movement of acoustic-reflective gesturing instruments.

18. The computer readable medium as set forth in Claim 10 wherein said software
for receiving detection event signals from a plurality of gesturing
sensors

comprises software for receiving signals from a plurality of infrared ("IR")
sensors adapted to detect movement of gesturing instruments which are
distinguishable by heat.

19. A system for detecting a command or identifying value made by a user through a gesture signature conducted with a gesturing instrument, said system comprising:

5 a plurality of gesture sensors organized in a two-dimensional arrangement, each sensor having an independent detection event signal which is activated upon detection of a gesturing device within the proximity of a sensor;

a gesture recognition processor having a plurality of inputs for said independent detection event signals, and for performing the steps of:

10 determining a sensor sequence from a series of sensor detection events responsive to movement of a gesturing instrument within the proximity of said plurality of sensors; and

correlating said sensor sequence to a predetermined sequence in order to authenticate a user or decode a user command.

15 20. The system as set forth in Claim 19 wherein said processor is adapted to apply timing analysis to said series of sensor detection events.

21. The system as set forth in Claim 19 wherein said processor is adapted to perform financial transaction authorizations.

22. The system as set forth in Claim 19 wherein said processor is adapted to control a physical security action.

20

23. The system as set forth in Claim 22 wherein said processor is adapted to actuate a door lock.

24. The system as set forth in Claim 22 wherein said processor is adapted to allow
removal of a physical item from a controlled access area.
25. The system as set forth in Claim 19 wherein said plurality of gesture sensors
comprises an array of Radio Frequency Identification (RFID) sensors adapted
5 to detect movement of RF ID devices.
26. The system as set forth in Claim 19 wherein said plurality of gesture sensors
comprises an array of acoustic sensors adapted to detect movement of
acoustic-reflective gesturing instruments.
27. The system as set forth in Claim 19 wherein said plurality of gesture sensors
10 comprises an array of infrared ("IR") sensors adapted to detect movement of
gesturing instruments which are distinguishable by heat.